UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,888	06/14/2006	Leonardus Petrus	TS1404 US	7569

23632 7590 11/12/2008

SHELL OIL COMPANY
P O BOX 2463
HOUSTON, TX 772522463

EXAMINER	
HEINCER, LIAM J	
ART UNIT	PAPER NUMBER
1796	
MAIL DATE	DELIVERY MODE
11/12/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/582,888	PETRUS ET AL.	
	Examiner	Art Unit	
	Liam J. Heincer	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5 and 10-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 10-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/06 and 7/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I, claims 1-5 and 10-17 in the reply filed on July 10, 2008 is acknowledged.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 10-12, 14, and 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Saya et al. (EP 1036878).

Considering Claims 1-3, 10, and 16: Saya et al. teaches a method for liquefying paper/cellulose (¶0001) comprising heating lignocellulosic material (¶0039) to a temperature of of 100 to 200 °C (¶0037) in the presence of an acid catalyst *¶0030) and valerolactone as a solvent (¶0033). Saya et al. also teaches the solvent as being present in an weight ratio with the lignocellulose of 0.5 to 3 (¶0030).

Considering Claim 5 and 18-19 As evidenced by the original specification, valerolactone can be obtained from levulinic acid (7:1-3).

Considering Claims 11 and 12: Saya et al. teaches using sulfuric acid as the catalyst/an acid with a pKa below 4.7 (¶0035).

Considering Claim 14: Saya et al. teaches th acid as being used in an amount of 1 to 5 percent by weight (¶0030).

Considering Claim 17: Saya et al. is silent towards the pressure during the process. As such a person having ordinary skill in the art at the time of invention would assume that the process was preformed at atmospheric pressure (1 bar), as deviations from this are generally noted in the art.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saya et al. (EP 1036878) as applied to claim 11 above, and further in view of Robitschek et al. (US 3,968,294).

Considering Claim 13: Saya et al. teaches the process of claim 11 as shown above. Saya et al. also teaches using organic acids as the catalyst (¶0035).

Saya et al. does not teach the catatlyst as being from the same group. However, Robitschek et al. teaches that maleic acid can be used as an acid catalyst (3:30-38). Saya et al. and Robitschek et al. are analogous art as they are concerned with the same technical difficulty, namely acid catalyzed reactions. It would have been obvious to a person having ordinary skill in the art at the time of invention to have used maleic acid as the catalyst in the process of Saya et al. as in Robitschek et al.,a dnt he motivation to do so would have been, as Robitschek et al. suggests, maleic acid is a

strong acid with similar ionization constants as the sulfuric, hydrochloric and toluene sulfonic acids used in Saya et al. (3:30-38).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saya et al. (EP 1036878) as applied to claim 1 above.

Considering Claim 15: Saya et al. teaches the process of claim 1 as shown above.

Saya et al. also teaches the solvent as being present in an weight ratio with the lignocellulose of 0.5 to 3 (¶0030). This ratio overlaps with the claimed ratio of 3 to 20. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). It would have been obvious to a person having ordinary skill in the art at the time of invention to have used the high end of the disclosed range, and the motivation to do so would have been to fully dissolve the lingocellulosic material.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO Form 892.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422

F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-5, 11, 12, and 16-20 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 11-15 of copending Application No. 11/420,981 in view of Saya et al. (EP 1036878).
Considering Claims 1, 11, 12, and 16: Claim 1 of application '981 teaches a process of heating lignocellulosic material in a gamma lactone and at a temperature in the range of 50 to 210 °C (Claim 1).

Claim 1 of application '981 does not teach adding an acid catalyst to the lignocellulosic material. However, Saya et al. teaches treating a lignocellulosic material with a acidic catalyst, such as sulfuric acid, in the presence of a cyclic lactone (¶0030 and 0035). Saya et al. also teaches the acid as being used in an amount of 1 to 5 percent by weight (¶0030). Claim 1 of application '981 and Saya et al. are analogous art as they are concerned with the same technical difficulty, namely treating lignocellulosic material with cyclic lactones. It would have been obvious to a person having ordinary skill in the art at the time of invention to have added an acid catalyst to the lignocellulosic material of Claim 1 of application '981 as in Saya et al. and the motivation to do so would have been, as Saya et al. suggests, the acid catalyst will assist in breaking down the lignocellulosic material (¶0030).
Considering Claims 2-5 and 18-20: Claims 12-15 of application '981 teach the lactone compounds of claims 2-4 of the instant application.
Considering Claim 17: Claim 11 teaches the pressure as being 1 to 10 bar (Claim 11).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Liam J. Heincer whose telephone number is 571-270-3297. The examiner can normally be reached on Monday thru Friday 7:30 to 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/ LJH
Supervisory Patent Examiner, Art Unit 1796 November 5, 2008